

## KATIE M. SAUND

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### RESEARCH EXPERIENCE & EDUCATION

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**PhD candidate in Microbiology & Immunology** University of Michigan, Ann Arbor, MI 2015 – Nov 2020 *expected*

- **Advisor:** Evan Snitkin, PhD
- **Thesis project:** Statistical & bioinformatic approaches to identify variants in whole genome sequencing (WGS) data associated with pathogenic phenotypes and patient outcomes during *Clostridium difficile* infection.
- **Topics:** computational biology, bacterial genomics & metagenomics, infectious disease, tool development
- **Awards:** ASM Travel Award (2019), UM Rackham Conference Travel Grant (2019) & Professional Development Award (2019), NIH Predoctoral Genetics Training Grant (2016 – 2018), UM Maas Fellowship (2015).
- **Software:**
  - [prewas](#). R package. Data preprocessing for bacterial GWAS.
  - [hogwash](#). R package. Three bacterial GWAS methods.
- **Papers:**
  - [Saund\\*, Lapp\\*, Thiede\\*, Pirani, Snitkin](#). Microbial Genomics. 2020. \*Equal contribution.
  - [Saund, Rao, Young, Snitkin](#). Open Forum Infectious Diseases. 2020.
  - [Mau, Eckley, Bergin, Saund, Villano, Vendrov, Snitkin, Young, Yung](#). mSphere. 2019.
  - Preprint: [Saund & Snitkin](#). Hogwash: Three bacterial GWAS methods.
  - Preprint: [Bassis, Bullock, Sack, Saund, Pirani, Snitkin, Alaniz, Quint, Young, Bell](#) Vaginal microbiota
- **External talks:** ASM Microbe (2019) & NIAID Systems Biology and Antibacterial Resistance Program (2018).

**Intern in Genetics and Pharmacogenomics** at Merck (Remote)

Summer 2020

- **Advisor:** Marc Sze, PhD
- **Topics:** Single-cell RNA sequencing, early discovery oncology

**Research rotation** with Benjamin Segal, MD at University of Michigan

2015

- **Project:** Screened effect of potential therapeutic drug on experimental autoimmune encephalomyelitis (a mouse model of multiple sclerosis) progression.
- **Topics:** autoimmunity, T-regs, T-cells, & immunology

**Research Assistant & Scientist 1** (Promoted 2014) Seattle Children's Research Institute, Seattle, WA 2012 – 2015

- **Advisor:** Courtney Crane, PhD (U. of Washington & Ben Towne Center for Childhood Cancer Research)
- **Project:** Characterization of the role of lactate dehydrogenase in the pediatric glioma tumor microenvironment.
- **Topics:** cancer immunotherapy, solid tumors, immunology, cancer metabolism, NK cell & macrophage biology
- **Paper:** [Haberthur, Brennan, ... Cancer Biology & Therapy. 2016.](#)

**California Institute of Technology** (Caltech) BS Biology, Pasadena, CA

2008 – 2012

- **Leadership:** Co-President for Class of 2012.
- **Awards:** Everhart Service (2012), Teruggi Memorial (2011), Studenski Memorial (2010), & Shepard (2009).
- **Research:** SantaLucia Lab: 16s rRNA alignment algorithm improvement (Wayne State University; 2009) & Manary Lab: food & clinical interventions for pediatric malnutrition (Washington University; 2010 & 2011).

### COMPUTATIONAL AND LABORATORY SKILLS

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**Computational** R, bash, package development, high performance cluster (HPC) computing, version control (git), data visualization, markdown, batch scheduling (PBS, Slurm, Grid Engine), unit testing, linux/mac/PC

**Bioinformatic tools** blast, ksnp, mafft, prank, roary, sift, snpeff

**R packages** ape, covr, devtools, lintr, phangorn, phytools, seqinr, Seurat, tidyverse, usethis

**Laboratory** CRISPR/Cas9 genome editing, cryostat, ELISA, experimental design, flow cytometry, immune cell isolation (cell sorting, magnetic enrichment), lentiviral transduction, mammalian cell culture, molecular biology (Gibson assembly, transfection, Western blot, qPCR), mouse handling, microbial techniques (anaerobic bacterial culture), plasmid construction, protein co-immunoprecipitation, robotic pipetting system.

### INVESTING & MENTORSHIP AT UNIVERSITY OF MICHIGAN

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**Student Advisor at Wolverine Venture Fund**

2018 – Present

- Performed due diligence on Series A/B healthcare & technology companies to inform investment decisions.

**Venture Capital Investment Competition**

2018 – 2019

- First place team at UM Ross School of Business competition & participant at Regional Competition (UT Austin).

**Undergraduate Honors Thesis Research Mentor**

2018 – Present

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- Weekly supervision of thesis research for undergraduate microbiology student.